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EFFECT OF CONTINUOUS TRAINING AND SURIYANAMASKAR ON BREATH HOLDING TIME OF MILD HYPERTENSION MIDDLE AGED UNIVERSITY TEACHERS

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Abstract

The purpose of the study was to find out the effect of continuous training and Suriyanamaskar on Breath Holding Time of mind hypertension University Teachers. For this study, forty five mild hypertension University teachers from St. Joseph University at Dar Es Salaam. The subject's age ranged from 35 to 45 years. The subjects were divided into three group one control and two experimental groups. Continuous training was administrated to group I (n = 15), Suriyanamaskar was administrated to group II (n=15) and group III (n=15) served as a control group. Test was conducted for Breath Holding Time before and after twelve weeks training programme and data was collected and analyzed statistically by analysis of covariance to find out the significant level. Based on the result of the study, it was concluded that Continuous training and Suriyanamaskar group significantly improved the Breath Holding Time of mild hyper tension Middle Aged University teachers.

Key words: Breath Holding Time, Walking, Suriyanamaskar and Pranayama.

1. Introduction

Continuous training is when low to mid-intensity exercises are performed for more than 20 minutes without resting intervals. It allows the body to work from its aerobic energy stores to improve overall fitness and endurance. It includes fat burning muscle building and increasing maximum aerobic potential (Kraemer, 2002). Aerobic exercises maximize the amount of oxygen that runs through your blood. In addition, this exercise keeps you moving at a steady, constant pace. Continuous exercise is performed all at one time without any breaks in between. Continuous training exercises include running. More specifically, long distance running is a prime example of continuous training (Geliebte *et al*., 1997). Walking and jogging are other similar exercises that are in the category of continuous exercise. Aerobic dancing, cycling, cross-country skiing, running on a treadmill and rowing machine exercise are all continuous exercises. Aerobic exercise improves the efficiency with which your respiratory system can supply oxygen to your body. Your body needs a constant and generous amount of oxygen in order to function properly (Cooper *et al*., 1984).

In Sanskrit the word 'yoga' is used to signify any form of connection. Regular practice of a variety of yoga techniques have been shown to lower heart rate and blood pressure in various populations. In recent years, it has become more apparent that people need techniques to help them cope with the everyday stressors of modern life (Jayasinghe *et al*., 2004). Pranayama improves

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overall performance of the body. The regular practice of pranayama increases chest wall expansion and almost all lung functions. The beneficial effect of different pranayama is well reported and has sound scientific basis (Sengupta, 2012; Galantino *et al*., 2008). Pranayama makes efficient use of abdominal and diaphragmatic muscles and improves the respiratory apparatus. Yoga strengthens the respiratory musculature due to which chest and lungs inflate and deflate to fullest possible extent and muscles are made to work to maximal extent (Singh *et al*., 2011). Pranayama improves overall performance of the body and the regular practice of pranayama increases chest wall expansion and almost all lung functions. The beneficial effect of different pranayama is well reported and has sound scientific basis (Chandrasekhar *et al*., 2014).

Yoga strengthens the respiratory musculature due to which chest and lungs inflate and deflate to fullest possible extent and muscles are made to work to maximal extent. The series of movements stretch the spinal column and upper and lower body through their full range of motion, massaging, toning and stimulating vital organs by alternately flexing the body forwards and backwards (Swami *et al*., 2010). It builds upper body strength through the inherent weight bearing positions, especially in the arms and shoulders, throughout the series. The simulated push-up movement and upper body weight bearing positions in the series may help to develop muscular strength and endurance in the pectoral, triceps, as well as the muscles of the trunk (Mahajan and Babbar, 2003). The series gives such a profound stretch to the body that it is considered to be a complete yoga practice by itself. The purpose of the study is to determine the effects of a two weeks, twice daily Suryanamaskar yoga practice(routine) on resting heart rate and blood pressure, upper body muscular endurance, flexibility in low to moderately active adult males and females (Agarwal, 2003). Breath holding time (BHT) may be considered as one of indicators of efficiency of breathing function. BHT is defined as the time taken by the subject to hold his breath as long as he can. Normal voluntary breath-holding time is 45-55 seconds (Godfrey and Campbell, 1968).

Statement of the problem

The purpose of the study was to investigate the effect of continuous training and Suriyanamaskar on Breath-holding time of mild hypertension Middle Aged University teachers.

2. Methodology

The sample for the present study consists of forty five mild hypertension University teachers from St.Joeph University at Dar Es Salaam. The subjects age ranged from 35 to 45 years and they were divided into three equal groups namely group I continuous training n = 15), Group II (Suriyanamaskar n = 15) and Group III (Control n = 15). Nose clip method analyzed to find out Breath Holding time as physiological variable for this study. Group I, and II were giving training for a period of twelve weeks for 3 days per week in the morning session between 06 to 07 am. The training programme was administrated for forty five minutes per session. Control group to do not undergo any training other than their regular work. The pre and posttest were taken before and after the training programme. Analysis of covariance was used to test the level of significance. Training programme

Strolling (Slow walk)

Aerobic (Brisk walk)

Suryanamaskar

3. Results

The collected data from the three groups namely continuous training, Suryanamaskar and control group on Breath Holding Time were statistically examined by analysis of covariance and the level of significance was fixed as 0.05 level of confidence. The above Table shows that the pretest means in Breath Holding Time of the control group is 35.60, Continuous training group is 36.33 and Suryanamaskar group was 37.93 and they had an 'F' ratio of 0.72 which was lesser than the table value 3.21 at degree of freedom 2, 42 at 0.05 level of confidence.

Table – 1: Analysis of Covariance for the data on Breath Holding Time of experimental and control groups

	Control Group	Continuous Group	Suryanamaskar Group	SOV	SS	df	M.Sq	'F' Ratio	Significance
Pre Test Mean S.D	35.60±4.64	36.33±5.84	37.93±5.74	B W	42.71 1239.87	2 42	21.36 29.52	0.72	0.49
Post Test Mean S.D	33.20±3.66	41.60±5.28	42.13±6.11	B W	753.24 1101.73	2 42	376.62 26.23	14.35*	0.00
Adjusted Post Test Mean	33.20	41.60	42.13	B W	536.89 182.93	2 41	268.44 4.46	60.17*	0.00

*Significant at 0.05 level

The value for df 2, 42 at 0.05 level =3.21, The value for df 2, 41 at 0.05 level =3.21

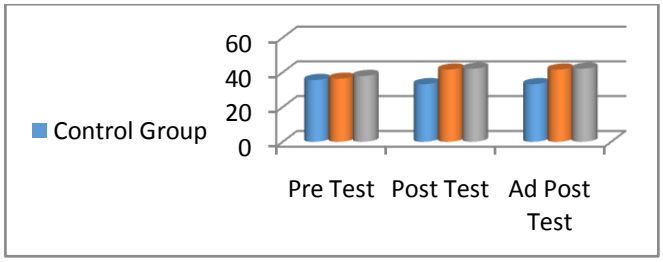
The posttest means of control group is 33.20, Low intensity continuous training group was 41.60 and the Suryanamaskar group was 42.13 and they resulted in 'F' ratio of 14.35 which was greater than the table value 3.21 at 0.05 level of confidence. It shows there was a significance difference among the posttest means. The adjusted means of control group 33.20, Continuous training group 41.60 and Suryanamaskar group 42.13 were shown in the table. The calculated Fratio 60.17 was above the table value. So, it is also significant at 0.05 level of confidence of selected group in Breath Holding Time.

Table – 2: Scheffe's post HOC test to measure ordered adjusted z between control and experimental groups

Control Group	Continuous training group	Suryanamaskar group	Mean difference	C.I
33.20	41.60		8.40*	
33.20		42.13	8.93*	
	41.60	42.13	0.53	1.94

* Significant at 0.05 level of confidence

Scheffe's Post hoc test showed that there was significant difference between control group and continuous group with mean difference 8.40, also there is significant difference between control group and Suryanamaskar group with mean difference 8.93. There was no significant difference between Continuous group and Suryanamaskar group with mean difference 0.53 because it is lesser than the C.I Value 1.94.



4. Discussion

The experimental groups were undergone Continuous training and Suryanamaskar which were assigned to them. From the analysis, it was evident that there was significant change was noticed after twelve weeks of Continuous training and Suryanamaskar on Breath Holding Time.

5. Conclusion

The continuous training and Suryanamaskar will improve the Breath Holding Time. After exercise body experiences immediate and more gradual effects. Essentially, the body is becoming more conditioned and the entire cardiovascular system improves, therefore it does not need the extra residual volume (Dowdy *et al.*,

1985). The minute start training, will notice more frequent muscle contraction, raised body temperature and pulse and deeper breathing. Longer-term effects occur as the body adapts to regular exercise, including heart getting larger, bones becoming denser and the breath holding time increased. So, continuous training and Suriyanamaskar should actively for respiratory motion, the lungs get exercise, make full use of lung capacity, breath holding time increased, to provide more blood Oxygen. The more energetic daily chest movements can become a normal breathing method to be effective. The mechanism of these exercises is increase respiratory muscle Strength, improve lung elasticity, and make breathing depth increase, enhance efficiency and function and improve lung breathing for mild hypertension, so as to improve breath holding time.

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